

States. The pressure gradient diminished as the HIGH advanced to the coast and winds did not reach verifying velocity.

Small-craft warnings were displayed on the Texas coast on the 9th, 19th, 26th, and 30th, and the afternoon of the 23d; and on the Louisiana coast on the 28th and 30th; also by the official in charge at Corpus Christi, Tex., on the afternoon of the 24th. These warnings were justified.

A cold wave of unusual severity for so early in the season overspread the northern portion of the district on the 28th-29th, for which cold-wave warnings had been issued on the a. m. map of the 27th for Oklahoma and the north portion of west Texas, extended on 2 p. m. special observations for Arkansas and north and central Texas, and further extended at night and the following morning for the remainder of the district. A marked change to unseasonably cold weather extended to the coast; but on account of the rapid eastward movement of the area of high pressure the isobars assumed an east-west trend, and cloudy weather, with rain, occurred in the more southern sections of the district, preventing the low temperature required for a cold wave. On the 30th, with low pressure moving eastward over the Gulf of Mexico while low temperatures continued, freezing weather threatened in the interior sections of the southern portion of the district; but the weather remained cloudy, preventing frost and freezing temperature that were forecast for the morning of the 31st.

Besides the warnings issued during the last few days of the month, frost or freezing temperature was forecast for northern sections of the district on the 9th, 10th, 17th, 18th, and 24th, and for most northern and central sections on the 19th, 20th, and 26th; and conditions occurred mostly as forecast.—*R. A. Dyke.*

DENVER FORECAST DISTRICT

October weather was unusual in several respects. Temperatures averaged below normal generally, especially in eastern Colorado and southwestern Arizona. The mean temperature at Denver was the lowest of record for October. A great deal of cloudiness prevailed; the percentage of possible sunshine was less than half the normal at Denver, while at Phoenix and Yuma, Ariz., the percentages were the lowest of record. A new record for the number of days with precipitation in October was established at Denver, there being 15 days with 0.1 inch or more, the previous record being 12 days. Precipitation was above normal except in northwestern Utah, southeastern Colorado, and southeastern New Mexico. The amounts received at the various stations varied from about double the normal to several times normal. At Yuma, Ariz., there has been only one other October in 56 years having as much rain as this one.

These unusual conditions resulted mainly from almost continuously high barometric pressure to the north and east of the district. Some of the HIGHS that crossed this region were of unusual intensity for so early in the season.

The one that appeared over Alberta on the morning of the 25th was drawn southward into Montana by the movement of a disturbance from the northeastern Rocky Mountain slope to Texas; it remained over the northern States, with varying intensity, until the morning of the 27th, by which time a rather energetic disturbance had developed in eastern Colorado. As it was evident that the displacement of this LOW would result in a cold wave, warning of a moderate cold wave was issued to eastern Colorado, including advices to livestock interests in

southeastern Colorado. This warning was verified. Cold waves in any part of the Denver district in October are of rare occurrence.

Warnings of frost and freezing temperature, nearly all of which were justified, were issued to various parts of the district almost daily from the 1st to the 26th, by which time killing frosts had occurred everywhere except in the extreme southern portion of the district.—*E. B. Gittings, jr.*

SAN FRANCISCO FORECAST DISTRICT

The weather during October, 1925, was remarkable for the small amount of precipitation recorded, except in southern California and the Plateau region. A small depression developed over the lower Colorado River Valley during the first week and gave heavy rain in southern California, especially in the extreme south and Mojave desert and more than normal amounts in Nevada and southern Idaho. In the North Pacific States very little rain fell, and was mostly confined to western Washington during the last decade.

To understand the unusual condition which prevailed, it is necessary to study the distribution of barometric pressure over Bering Sea, Alaska, and the north Pacific Ocean. The pressure was low over Bering Sea and Alaska until the 21st, when an area of high pressure appeared over the Pribilof Islands and moved rapidly eastward over northern Alaska and disappeared to the east on the 25th. The area of high pressure was closely followed by another large storm which continued over the north Pacific and Alaska until the end of the month. A ridge of high pressure continued off the coast during the entire month. This distribution of pressure caused all storms from the ocean to pass inland north of Queen Charlotte Island.

Southwest storm warnings were ordered on the Washington coast on the 24th, but no verifying velocities occurred. Advisory warnings of storm conditions along the Great Circle route to the Orient were sent several times to North Pacific stations for the benefit of shipping bound for the Orient and Alaska. Warnings of expected high seas along the coast were sent frequently to the United States engineers building the jetty at the mouth of Humboldt Bay.

Special forecasts for fruit driers in the valleys of northern California were broadcast daily and were appreciated, as shown by the following extracts from letters received: From horticultural commissioner, Sutter County: "We have appreciated the service you have given us this season and hope to be able to take advantage of it another year." From county agent, Sonoma County: "I wish to express for the growers their appreciation of the service this year, and especially for the 12:30 p. m. radio reports."—*G. H. Willson.*

RIVERS AND FLOODS

By R. E. SPENCER

The only important flood of the month occurred following the 17th in the White River of Arkansas and its tributaries. The river, still high as a result of precipitation on the 7th and 8th, rose rapidly following rather heavy rains on the 16th, passing flood stage at several stations (see table). Warnings, which were issued well in advance of the flood, resulted in a saving of \$38,000 in that portion of the inundated area from which reports could be obtained, while unavoidable losses, principally in cotton and corn crops, were estimated as follows:

Crops.....	\$170, 000
Livestock.....	2, 000
Suspension of business.....	8, 000
Total.....	180, 000

Owing to a levee break in the lower St. Francis River of Missouri, a considerable area of farm land in Dunklin County was overflowed on the 24th. No definite reports of damage have been received except that a newspaper estimate places crop losses at something less than \$100,000.

Rises in the San Antonio and Dallas districts were well forecast and were attended by only slight losses and a considerable saving in livestock.

Heavy local rain in western Colorado on the 5th resulted in losses in highways and bridges and railroad property estimated (by newspaper) as at least \$100,000.

River	Station	Flood stage	Above flood stages—dates		Crest	
			From	To	Stage	Date
Mississippi drainage:		<i>Feet</i>			<i>Feet</i>	
Grand.....	Gallatin, Mo.....	20	4	5	25.0	5
	Chillicothe, Mo.....	18	4	7	20.8	5
Canadian.....	Logan, N. Mex.....	4	2	2	5.6	2
Petit Jean.....	Danville, Ark.....	20	16	20	23.4	18
White.....	Batesville, Ark.....	23	17	18	25.5	17
	Newport, Ark.....	26	19	20	26.1	19
	Georgetown, Ark.....	22	18	29	23.3	23-24
Black.....	Black Rock, Ark.....	14	16	30	20.7	18
Cache.....	Patterson, Ark.....	9	15	(¹)	10.5	22
West Gulf drainage:						
Trinity.....	Dallas, Tex.....	25	18	18	25.8	18
Little.....	Little River, Tex.....	30	17	17	34.6	17
Colorado.....	Columbus, Tex.....	28	14	15	33.0	15
	Victoria, Tex.....	16	14	14	18.2	14
Guadalupe.....		17	17	20	21.5	19
Rio Grande.....	Rio Grande City, Tex.....	15	1	2	19.0	1
	San Benito, Tex.....	21	(¹)	6	24.3	3 and 4

¹ Continued at end of month.

² Continued from last month. River above flood stage following Sept. 26, 1925.

MEAN LAKE LEVELS DURING OCTOBER, 1925

By UNITED STATES LAKE SURVEY

[Detroit, Mich., Nov. 5, 1925]

The following data are reported in the "Notice to Mariners" of the above date:

Data	Lakes ¹			
	Superior	Michigan and Huron	Erie	Ontario
Mean level during October, 1925:	<i>Feet.</i>	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>
Above mean sea level at New York.....	601.38	577.59	570.53	244.32
Above or below—				
Mean stage of September, 1925.....	-0.02	-0.33	-0.37	-0.24
Mean stage of October, 1924.....	-0.46	-1.31	-1.17	-1.13
Average stage for October last 10 years.....	-1.14	-2.36	-1.48	-1.32
Highest recorded October stage.....	-2.26	-5.15	-3.17	-3.49
Lowest recorded October stage.....	-0.20	-1.31	-0.27	+0.65
Average departure (since 1860) of October level from September level.....	-0.06	-0.23	-0.32	-0.35

¹ Lake St. Clair's level: In October, 1925, 573.20 feet.

EFFECT OF WEATHER ON CROPS AND FARMING OPERATIONS, OCTOBER, 1925

By J. B. KINCER

General summary.—The persistence of cloudy and rainy weather from the middle and upper Mississippi Valley eastward made conditions decidedly unfavorable for farm work, with a consequent delay in the usual fall operations. It was especially unfavorable for drying corn and for seeding fall grains. Rainfall relieved the severe drought in the Southeast, however, which made much more favor-

able conditions in that area, and the soil at the close of the month was in generally good shape, though more rain was needed locally in Florida. The rains in the South revived pastures and improved late truck and other minor crops, but there was some delay to field work in central and west Gulf sections.

The first general frost of the season over the interior of the country occurred from the 8th to the 12th, but no widespread or material harm resulted because of the advanced condition of crops. The freezing temperatures near the close of the month, however, caused damage to undug potatoes, and in some sections to unpicked apples, over a wide area from the northern Plains eastward. West of the Rocky Mountains the weather conditions were generally favorable, though the soil continued too dry in parts of the Pacific Northwest.

Small grains.—Wet weather from the central Mississippi Valley eastward was unfavorable for seeding winter wheat during most of the month, and this work was much delayed. The early-seeded grain germinated satisfactorily, however, and was generally in good condition at the close of the month. Over the Great Plains area and in the Southwest rainfall was lighter and seeding made good progress, while the breaking of the drought in the Southeast facilitated the seeding of fall grains in that area. In the Northeast buckwheat was unfavorably affected by wet weather, particularly in New York.

Corn.—In the central and eastern portions of the Corn Belt it continued generally too cloudy and wet for drying out corn, and husking was delayed. There was some damage by molding in shock in the Ohio Valley States, and to both shocked and outstanding corn in the upper Mississippi Valley, particularly in Iowa. In the Great Plains States conditions were more favorable, and mostly good progress was made in gathering the crop, though the grain dried slowly in parts of this area and there was considerable complaint of high moisture content of grain. In the Southeast there was some interruption by the heavy rainfall to harvesting the latter part of the month.

Cotton.—The weather was decidedly unfavorable for outstanding cotton over the central-northern and northwestern portions of the belt, although the latter part of October was much more favorable by reason of less rainfall and more sunshine. In the sections where rain was frequent much damage was done to open cotton by lowering of grade, and picking was practically at a standstill during part of the month. Near the close, freezing temperatures overspread the northwestern cotton districts, which stopped further growth and damaged immature bolls. In the eastern portions of the belt conditions were more favorable, though there was some interruption by rain to picking in the northeast during the latter part of the month.

Miscellaneous crops.—In the Southeastern States fall truck and miscellaneous crops were materially improved by generous rains, while conditions were mostly favorable in central and west Gulf sections. There was considerable complaint of potatoes rotting in New York because of wet soil, and widespread harm was done to undug potatoes in many Northern States by freezing weather near the close of the month. There was considerable delay to sugar-beet harvest by frequent rains, though this work was facilitated in the western Plateau districts by increased soil moisture. Pastures improved generally in the Southeast, and conditions were mostly favorable for grazing interests in the West. In the central and eastern portions of the country pastures were in good condition for the season.